VERSION WITH MARKINS TO SHOW CHANGES MADE IN CLAIMS

Please note that additions to the claims are shown underlined and deletions are shown in brackets.

1. A non-thermal device for the treatment and/or cure of cardiac arrhythmias comprising an illumination mechanism and an MRI receiver.

3. A photochemotherapy or photodynamic therapy device for the ablation of the pulmonary vein ostia comprising an illumination mechanism and an MRI receiver.

5. The device of claim[s] 1 [through 4], wherein the [device includes a high resolution MRI receiver and] illumination mechanism is a fiberoptic laser.

6. The device of claim [4] 5, wherein the [high resolution] MRI receiver and the fiberoptic laser are housed within a balloon.

7. A device for the treatment and/or cure of cardiac arrhythmias, comprising a catheter having a balloon or reservoir at or near its distal end, [and] a light source located within the balloon or reservoir, and an MRI receiver, whereby a photosensitizing agent is perfused into and delivered by the balloon to a desired treatment site and whereby light capable of activating the photosensitizing agent is delivered by the light source through the balloon and to the desired treatment site.

8. A photochemotherapy or photodynamic therapy device for the treatment and/or cure of cardiac arrhythmias comprising:

a catheter;

a balloon at the distal end of the catheter;

a fiberoptic laser within the catheter[coaxial with the coil]; and

an MRI receiver within the catheter;

wherein the fiber illuminates [the treatment] an area being treated and wherein the MRI receiver guides the device and/or assists in monitoring the treatment and.or cure of cardiac arrhythmias.

9. The device of claim 8, wherein the fiberoptic laser has a tip and illumination is scattered at the tip of the fiberoptic laser radially through the balloon and into the treatment area.

11. The device of [any one or] claim[s] 8 [through 10], wherein the fiber provides illumination at a wavelength capable of activating a photosensitizing agent used in the photochemotherapy or photodynamic therapy.

12. A device for the treatment of cardiac arrhythmias comprising a dual function catheter that combines [high-resolution] MR imaging and photochemotherapy or photodynamic therapy.

14. The device of claim 12 [13], wherein the [high-resolution] MR imaging monitors endpoints of the photodynamic therapy or photochemotherapy.

15. The device of claim 14, wherein the device further comprises a balloon and provides intravascular balloon angioplasty.

16. A device for the treatment and/or cure of cardiac arrhythmias that induces apoptotic cell death of tissues and pathways from which abnormal signals arise and/or in other cardiac tissues such that abnormal electrical rhythms can not be generated and/or sustained, comprising an illumination mechanism and an MRI receiver.

17. A device for the treatment and/or cure of cardiac arrhythmias that uses free radical generation to destroy tissues and pathways from which abnormal signals arise and/or that destroys other cardiac tissues such that abnormal electrical rhythms cannot be generated and/or sustained, comprising an illumination mechanism and an MRI receiver.

18. A medical device kit, comprising one or more of the devices of any one of claims 1, 3 or 7 [through 17].

20. A non-thermal method for treating and/or curing cardiac arrhythmias comprising the steps of: utilizing a device according to any one of claims 1, 3, 7, 8, 12, 16 or 17 to destroy tissues and pathways from which abnormal signals arise and/or in other cardiac tissues such that abnormal electrical rhythms can not be generated and/or sustained, whereby MR imaging is used to guide the device and assist in monitoring the progress of the photochemotherapy or photodynamic therapy.

21. A method for treating and/or curing cardiac arrhythmias using photochemotherapy or photodynamic therapy comprising the steps of:

(a) providing a device comprising an illumination mechanism and an MRI receiver;

(b) administering a photosensitizing agent to a desired treatment site;

(c) inserting the device into the desired treatment site using MRI to guide the device;

(d) delivering laser energy at a wavelength required to activate the photosensitizing agent; and

(e) utilizing MR imaging to assist in monitoring the progress of the photochemotherapy or photodynamic therapy.

22. A method to electrically isolate the pulmonary vein from the left atrium comprising the steps of using photochemotherapy or photodynamic therapy to electrically isolate the pulmonary vein from the left atrium under the guidance of MR imaging.

23. A method of ablating at least a section of the pulmonary vein using photochemotherapy or photodynamic therapy, comprising the steps of using a device according to any one of claims 1, 3, 7, 8, 12, 16 or 17 to ablate at least a section of the pulmonary vein and using MR imaging to monitor the progress of the ablation.

24. A method to treat and/or cure cardiac arrhythmias comprising using photochemotherapy or photodynamic therapy to destroy tissues and pathways from which abnormal signals arise and/or in other cardiac tissues such that abnormal

electrical rhythms can not be generated and/or sustained wherein MR imaging is used to guide and monitor the progress of tissue being destroyed.

25. A photodynamic method comprising [for] causing cell death in certain cardiac tissue such that abnormal electrical rhythms can not be generated and/or sustained and using MR imaging to guide and monitor the progress of cell death.

26. A method to treat and/or cure cardiac arrhythmias comprising using the device of any one of claims 1, 3, 7, 8, 12, 16 or [through] 17.

27. A method to treat and/or cure cardiac arrhythmias using photochemotherapy or photodynamic therapy comprising:

delivering a therapeutically effective amount of a photosensitizing agent to the cardiac tissue, wherein the photosensitizing agent is preferentially absorbed by the tissues and pathways from which abnormal signals causing the arrhythmias arise; [and]

activating the photosensitizing agent with an illumination mechanism; and using MR imaging to guide and monitor the treatment.

31. The method of [any one of] claim[s 21 through 30] 21 or 27, wherein [a] the photosensitizing agent is delivered to the cardiac tissue systemically.

32. The method of [any one of] claim[s 21through 30] 21 or 27, wherein [a] the photosensitizing agent is delivered to the cardiac tissue by an angioplasty catheter balloon or reservoir mechanism.

37. The method of [any one of] claim[s 21 through 30] 21 or 27, wherein the photosensitizing agent is delivered to the cardiac tissue by directly perfusing the photosensitizing agent into the coronary arteries.

38. The method of any one of claims [19 through 37] 21, 22, 24, 25 or 27, wherein the photochemotherapy or photodynamic therapy utilizes an illumination mechanism and the illumination mechanism comprises a fiberoptic catheter.

48. The method of any one of claims 21, 22, 24, 25 or 27 [through 47], further comprising the step of utilizing MR imaging to monitor coagulation on the endocardial surface.

49. The method of any one of claims 21, 22, 24, 25 or 27 [through 48], further comprising the step of utilizing MR imaging to monitor oxygenation levels.

50. The method of any one of claims 21, 22, 24, 25 or 27 [through 49], further comprising the step of utilizing MR imaging to monitor phosphate levels.

Please add the following new claims:

55. The device of claim 3, wherein the illumination mechanism is a fiberoptic laser.

56. The device of claim 1, wherein the device further includes electrodes for acquiring bio-signals.

57. The device of claim 6, wherein the device further includes electrodes on the surface of the balloons for acquiring bio-signals.

58. The method of claim 20, wherein targeted contrast agents specific for apoptosis are used with MR imaging to guide the device and assist in monitoring the progress of the photochemotherapy or photodynamic therapy.

59. The method of any one of claims 21, 22 24, 25 or 27, wherein targeted contrast agents specific for apoptosis are used with MR imaging to guide the device and assist in monitoring the progress of the photochemotherapy or photodynamic therapy.

60. The device of claim 1 further comprising position trackers that interact with MRI to provide X, Y and Z coordinate tracking of the device.